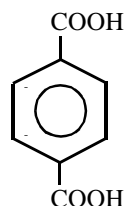


TEREPHTHALIC ACID

CAS Registry Number: 100-21-0

Molecular Formula: $C_8H_6O_4$



Terephthalic acid consists of white crystals or powder. It is insoluble in water, chloroform, ether, and acetic acid and soluble in alcohol (slightly) and alkalies. Terephthalic acid sublimates at 402 °C (Merck, 1989). It emits acid smoke and irritating fumes when heated to decomposition (Sax, 1989).

Physical Properties of Terephthalic Acid

Synonyms: 1,4-benzendicarboxylic acid; p-benzenedicarboxylic acid; p-phthalic acid

Molecular Weight:	166.13
Melting Point:	140.6 °C
Boiling Point:	288 °C
Density/Specific Gravity:	1.51 (water = 1)

(HSDB, 1993; Merck, 1989)

SOURCES AND EMISSIONS

A. Sources

Terephthalic acid is used in the production of linear, crystalline polyester resins, fibers, and films (Sax, 1987). It is also used as reagent for alkali in wool and as an additive in poultry feeds (HSDB, 1993).

B. Emissions

No emissions of terephthalic acid from stationary sources in California were reported, based on data obtained under the Air Toxics "Hot Spots" Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

No information about the natural occurrence of terephthalic acid was found in the readily-available literature.

AMBIENT CONCENTRATIONS

Toxic Air Contaminant Identification

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No Air Resources Board data exist for ambient measurements of terephthalic acid.

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of terephthalic acid was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

Atmospheric terephthalic acid has been found both in vapor and particulate phases. Gaseous terephthalic acid is expected to undergo wet and dry deposition and slow reaction with the hydroxyl radical. Particulate phase terephthalic acid may be removed from the atmosphere by dry and wet deposition. The average half-life and lifetime for particles in the atmosphere is estimated to be about 3.5 to 10 days and 5 to 15 days, respectively (Atkinson, 1995; Balkanski et al., 1993). Because of its atmospheric persistence, terephthalic acid is likely to undergo long range transport to remote areas (HSDB, 1993).

AB 2588 RISK ASSESSMENT INFORMATION

Terephthalic acid emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

Probable routes of human exposure to terephthalic acid are inhalation, ingestion and dermal contact.

Non-Cancer: Acute exposure to terephthalic acid may cause irritation of the mouth, nose, throat, or eyes. Although not absorbed through the skin, terephthalic acid may be irritating to breaks in the skin (Sittig, 1991).

The United States Environmental Protection Agency (U.S. EPA) has not established a Reference Concentration (RfC) or an oral Reference Dose (RfD) for terephthalic acid (U.S. EPA, 1995a).

There is limited evidence from animal studies that terephthalic acid causes developmental effects including decreased fetal survival and weight, and kidney and bladder effects

(HSDB, 1995).

Cancer: The International Agency for Research on Cancer and the U.S. EPA have not classified terephthalic acid as to its carcinogenic potential (IARC, 1987a; U.S. EPA, 1995a).

